

**Bed Bugs: How to Implement
Integrated Pest Management at Your
Property**



Bed Bug IPM

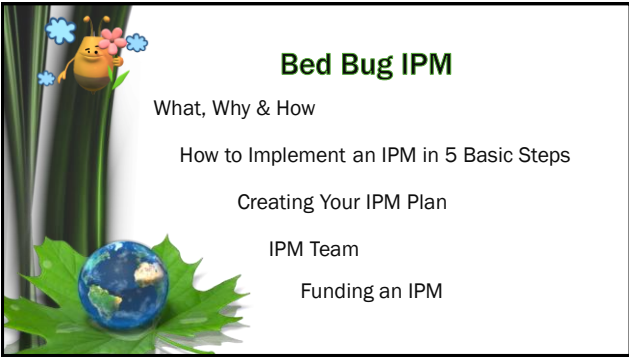
What, Why & How

How to Implement an IPM in 5 Basic Steps

Creating Your IPM Plan

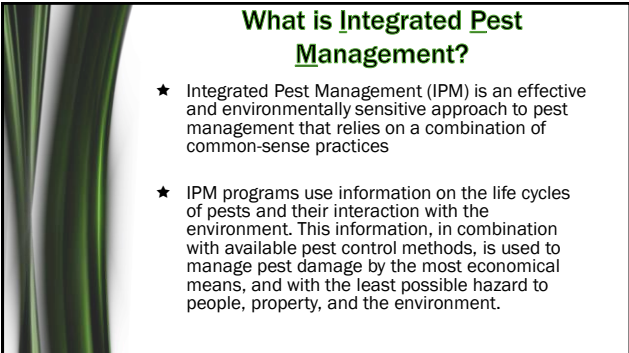
IPM Team

Funding an IPM



**What is Integrated Pest
Management?**

- ★ Integrated Pest Management (IPM) is an effective and environmentally sensitive approach to pest management that relies on a combination of common-sense practices
- ★ IPM programs use information on the life cycles of pests and their interaction with the environment. This information, in combination with available pest control methods, is used to manage pest damage by the most economical means, and with the least possible hazard to people, property, and the environment.



What is IPM?

- ★ IPM takes advantage of all appropriate pest management options including, but not limited to, the careful use of pesticides


Why Have an IPM

- ★ Save money
- ★ Lessen possible hazards
- ★ People
- ★ Property and
- ★ Environment
- ★ Educated residents
- ★ Makes HUD happy

How to Implement an IPM in 5 Basic Steps

How to Implement an IPM in 5 Basic Steps

1. Inspect and monitor
2. Identify bed bugs
3. Establish acceptable thresholds
4. Make a plan
5. Ensure plan effectiveness



1. INSPECT AND MONITOR

Inspect and Monitor

- ★ Set up resident unit inspections
- ★ Inspect each room
- ★ Place monitors
- ★ Re-inspect after one week









Unit Inspections

- ★ Where to Look for Bed Bugs
- ★ Check the sheets, pillows and blankets for bugs and stains
- ★ Look under the mattress and pillows
- ★ Check the seams and puckers of the mattress and box spring

Unit Inspections

- ★ Where to Look for Bed Bugs
- ★ Look at the bed frame for bugs and stains
- ★ Check the floor, carpet edges and moldings
- ★ Look inside and underneath drawers
- ★ Look at radios, phones, clocks near the bed or on a night stand may also be hiding places for bed bugs

Move-out Inspections

- ★ Do a thorough inspection of the unit
- ★ Check baseboards
- ★ Check carpets
- ★ Check mini blinds/curtains
- ★ Check ceiling especially popcorn ceilings
- ★ Check closet tracks

APPENDIX D—IPM FOCUS UNIT TRACKING LOG


Name/Address of Property: _____

The IPM team identifies areas or units of focus and coordinates IPM efforts. This sheet unites pest control, housing, and maintenance record-keeping systems. Keep it in the front of the IPM log.

Date	Unit / Location	Name of Staff Member / Technician	Pest Level Note any pests and circle the level of infestation. Involve your PMP.	Repairs Needed		Recent or Current Focus Unit?	Housekeeping / Lease Compliance	
				Work order number or problem description	Check when completed		Yes or No	Housekeeping level* (circle one)
			Type of Pest: Light Moderate Heavy				G F P	
			Type of Pest: Light Moderate Heavy				G F P	
			Type of Pest: Light Moderate Heavy				G F P	

* Housekeeping level:
 G Good—little or no food or water accessible to pests, easy to move throughout the unit, and inspection in all areas is possible
 F Fair—dishes left undone for more than one day, or plenty of food or water accessible to pests, or PMP has to step over or move items to inspect
 P Poor—multiple days of dirty dishes, sloppy food storage methods, or PMP's inspection and service is limited by clutter

Download additional copies of this log at: www.stoppests.org/file/IPM_Log_Example



2. IDENTIFY BED BUGS

THE FACTS ABOUT BED BUGS

What is a Bed Bug?

- ★ Bed bugs are small wingless insects that feed on blood of humans or warm blooded animals
- ★ Bed bugs are reddish or brownish flat bugs
- ★ Bed bugs are nocturnal
- ★ A full grown bed bug is about the size of an apple seed
- ★ They molt in between feedings





History

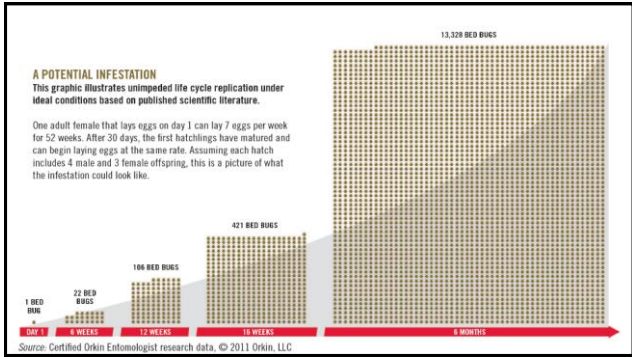
- ★ Bed bugs date back to the 1700s
- ★ Bed bugs were almost eradicated between 1950 to the early 1970s
- ★ In 1972 DDT was banned
- ★ Reports have increased by 81% since the year 2000
- ★ 9 out of 10 Pest Control Companies have treated for bed bugs

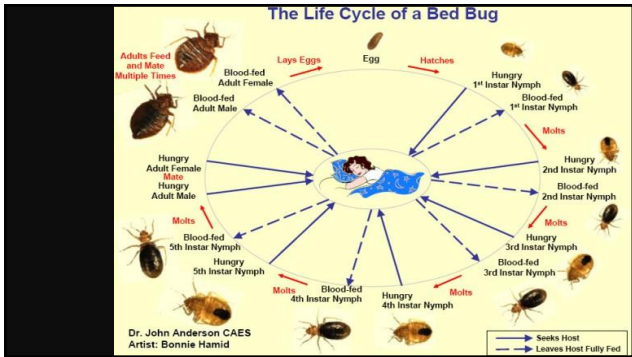
Why the Increase

- ★ Growth from nymph to adult is completed in 37 to 128 days
- ★ A blood meal is required between molts. Usually takes 8 days between molts

Why the Increase

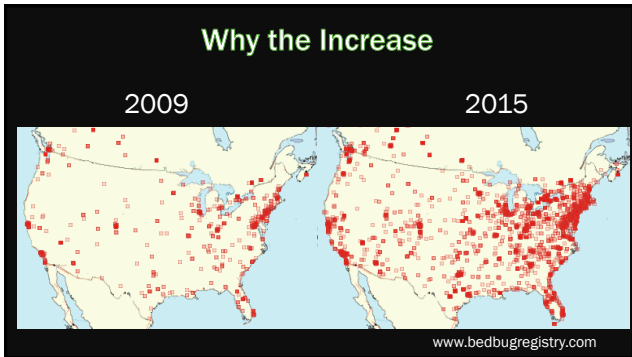
- ★ Female lays 5-50 eggs on rough surfaces usually in cracks
- ★ Female lays 200 to 500 eggs in lifetime
- ★ Eggs hatch in about 10 days






Why the Increase

- ★ World travel has increased
- ★ Garage sales
- ★ Increase in Homeless Shelters
- ★ Increase in Public Transit
- ★ Improper disposal of infested items




2015 TOP 50 Bed Bug Cities

1. Chicago	27. Sacramento - Stockton - Modesto, Calif. (+14)
2. Detroit (+2)	28. Syracuse, N.Y. (+14)
3. Columbus, Ohio	29. Boston - Manchester (-9)
4. Los Angeles (-2)	30. Charlotte, N.C. (-5)
5. Cleveland - Akron - Canton, Ohio (+1)	31. Baltimore (-4)
6. Dallas - Ft. Worth (+7)	32. Phoenix - Prescott (-4)
7. Cincinnati (-2)	33. Miami - Ft. Lauderdale (-11)
8. Denver (+4)	34. Knoxville, Tenn. (-3)
9. Richmond - Petersburg, Va. (+2)	35. Cedar Rapids - Waterloo - Dubuque, Iowa (-6)
10. Dayton, Ohio (-3)	36. Minneapolis - St. Paul (+8)
11. Indianapolis (-1)	37. Hartford - New Haven, Conn. (+3)
12. Houston (+4)	38. Champaign - Springfield - Decatur, Ill. (-3)
13. Seattle - Tacoma (+5)	39. San Diego (-13)
14. Washington, District of Columbia - Hagerstown, Md. (-6)	40. Lincoln - Hastings - Kearney, Neb. (-1)
15. Milwaukee (+6)	41. Kansas City, Mo. (+9)
16. San Francisco - Oakland - San Jose (-3)	42. Honolulu (+3)
17. Raleigh - Durham - Fayetteville, N.C. (-5)	43. Albany - Schenectady - Troy, N.Y.
18. New York (-1)	44. Colorado Springs - Pueblo, Colo. (-2)
19. Charleston - Huntington, W.Va. (+11)	45. Myrtle Beach - Florence, S.C.
20. Grand Rapids - Kalamazoo - Battle Creek, Mich. (+13)	46. St. Louis
21. Omaha, Neb. (+16)	47. Greenville - Spartanburg, S.C. - Asheville, N.C. (11)
22. Louisville, Ky. (+10)	48. Bowling Green, Ky.
23. Nashville, Tenn.	49. Ft. Wayne, Ind.
24. Lexington, Ky. (+16)	50. Toledo, Ohio (-4)
25. Atlanta (-10)	
26. Buffalo, N.Y. (+22)	




How Do Bed Bugs Find a "Meal"

- ★ Bed bug travel along pipes and through wall cracks and electrical outlets
- ★ They are able to sense temperature and carbon dioxide
- ★ They are attracted to oily skin
- ★ A bed bug can go as long as a year without a blood meal



Bed Bug Bites

- ★ They usually feed about an hour or two before sunrise
- ★ As they bite they inject and anticoagulant to get the blood flowing



Bed Bug Bites

- ★ Their saliva also contains an anesthetic causing the bite to be painless while they are feeding
- ★ They only feed for about 5 minutes then they return to a hiding place

Bed Bug Bites

- ★ A lot of people have allergic reactions to the bites causing welts and severe itching
- ★ Severe infestations can cause people to suffer from sleeplessness, they become irritable and may even develop an iron deficiency
- ★ Some people do not have any reaction to the bites
- ★ Bed bugs do not transmit disease



3. ESTABLISH ACCEPTABLE THRESHOLDS

Establish Acceptable Thresholds

- ★ How many are too many
- ★ Determine acceptable pest levels
- ★ Determine level of control
- ★ Eradication is often impossible
- ★ Keeps bed bugs from forming a genetic biases
- ★ What happens when the threshold is exceeded?

4. MAKE A PLAN

ENSURE EARLY DETECTION

Education, Education, Education!

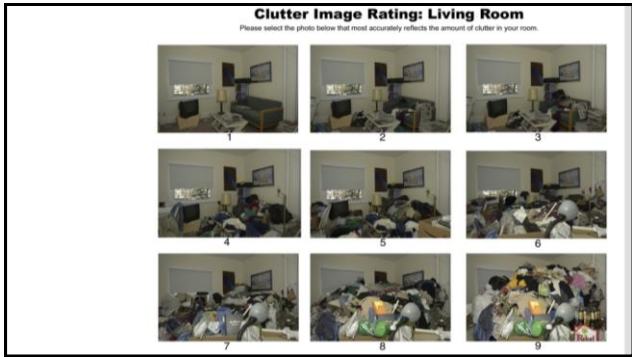
- ★ Reduce Clutter
- ★ Educate Residents at move-in
- ★ Continued education

Reduce Clutter

- ★ Work with residents to ensure clutter is reduced
- ★ Seek community resources for residents that have hoarding problems
- ★ Eliminate hiding places
- ★ Make the bed an island

Clutter Image Rating: Bedroom
Please select the photo that most accurately reflects the amount of clutter in your room.







Educate Residents

- ★ Give information at move-in
- ★ Identify what bed bugs look like
- ★ Explain how to inspect for bed bugs
- ★ Have bed bug policies and procedures incorporate them into House Rules

Educate Residents

★ Show the video found at:

★ 17 Minute Video in English and Spanish

★ <http://www.stoppests.org/working-with-residents/residents-briefing-video/>

or

★ 8 Minute Video in English

★ http://www.onpha.on.ca/AM/Template.cfm?Section=Video_Library&CONTENTID=5524&TEMPLATE=/CM/ContentDisplay.cfm

Educate Residents

★ Give brochure

★ Provide ongoing training about how bud bugs are brought into the unit/building

Do Not Bring in...

★ Used mattresses, furniture, books



When Removing Furniture or Other Items



Education

- ★ Teach your residents how to be vigilant when they are traveling

Incentive to Report

- ★ Offer gift cards to residents who report bed bugs and bed bugs are found during a subsequent inspection.



Before travel

- ★ Check travel websites to see if there have been reports of bed bugs
- ★ <http://www.tripadvisor.com>
- ★ <http://www.hotelchatter.com>
- ★ <http://www.bedbugregistry.com>
- ★ <http://www.bedbugcentral.com>
- ★ User reviews on the hotel's website

Once in the Hotel Room

- ★ Peel back the bed sheets, check the mattress, pay special attention to the seams
- ★ Check mattress tag
- ★ Check behind the headboard if possible






Once in the Hotel Room

- ★ Inspect the baseboards along the wall



Once in the Hotel Room

- ★ Check the bedside table under alarm clock and the phone



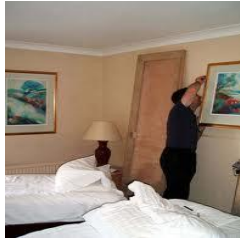
Once in the Hotel Room

- ★ Look for signs of bed bugs in the drawers



Once in the Hotel Room

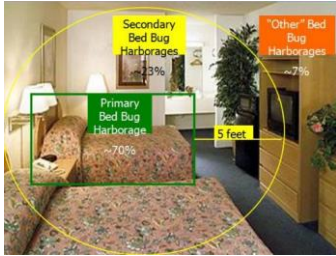
- ★ Look behind hanging pictures



Once in the Hotel Room

- ★ Look behind the curtains
- ★ Look along the window tracks
- ★ Look for white powder
- ★ Smell of raspberries

Once in the Hotel Room





IF BED BUGS ARE FOUND,
MOVE TO ANOTHER ROOM!

Safeguards

- ★ Keep luggage off of the floor
- ★ Keep luggage off of or next to the bed
- ★ Use metal /wood racks provided



Safeguards

- ★ Do not place items in drawers



Safeguards

- ★ Keep luggage closed/zipped



When You Are Going Home

- ★ Inspect luggage
- ★ Pack items in plastic travel bags



Greatest Invention Ever!

- ★ Simply place your clothes into a GreenClean bag, tie the bag with the attached dissolvable tie strip, walk to your laundry machine and drop the bag into the machine, add your normal detergent and set the cycle to hot laundering and turn the washer on. When you return only your clean clothes will remain free of bed bugs.



What to do When You Get Home

- ★ Remember bed bugs are "Hitchhikers"
- ★ Unpack luggage away from the bedroom
- ★ Launder clothes in the hottest water possible
- ★ Dry-cleaning
- ★ Items can be put in black trash bags

WHAT TO LOOK FOR IN AN EXTERMINATOR/INSPECTOR

Questions to Ask an Exterminator

- ★ Does your company treat for bed bugs
- ★ How long have you been treating for bed bugs
- ★ Can you provide references
- ★ Do you charge an inspection fee

Questions to Ask an Exterminator

- ★ What do you use to treat bed bugs
- ★ Do you rotate your chemicals
- ★ Do you only use pesticides recommended for bed bugs
- ★ Do you offer steam cleaning or other types of heat treatments

Develop an Integrated Pest Management (IPM) Plan

This is a plan to help prevent and respond to pests

<http://www.stoppests.org>

Addressing Infestations

- ★ Within 24 hours, the Owner/Agent (O/A) should respond or make contact with the resident if there is a report of bed bugs.
- ★ The O/A should provide:
 - ★ Information about bed bugs
 - ★ Discuss pre-inspections measures the resident should take

Addressing Infestations

- ★ The O/A or a qualified third party trained in bed bug detection should inspect the unit to determine if bed bugs are present

Addressing Infestations

- ★ The inspection should cover the unit reporting the infestation and no less than surrounding apartments consisting of the units above, below, left and right, and should be completed within 3 calendar days of a resident complaint if possible

Addressing Infestations

- ★ If reputable, licensed pest control companies are unattainable within three calendar days, the O/A is required to retain documentation of the efforts to obtain qualified services

Addressing Infestations


- ★ When an infestation is identified the surrounding units should be treated

Treatment Should Include

- ★ A balance of pesticide and non-pesticide treatment
- ★ Freezing
- ★ Heat
- ★ Diatomaceous Earth
- ★ Isolation
- ★ Pesticides (rotate)

Use of Pesticides

- ★ Signal Words
- ★ CAUTION
- ★ WARNING
- ★ DANGER
- ★ Must be registered with the EPA

How IPM differs from calendar-based extermination 

IPM	Calendar-Based Extermination
Inspection with a flashlight and monitoring are used to identify priority areas (where infestation exists or pest risk is high) for the best use of resources and staff time	Calendar-based use of pesticides throughout the building with quick inspection
Solves the infestation and prevents future occurrences	Results last only as long as the pesticide remains active
Takes into account pest behavior and life cycles and uses solutions that prevent pest population growth	Success depends on each pest coming in contact with a pesticide
Protects sensitive individuals from exposure to chemicals	Limited notification and posting about pesticides; alternatives rarely offered to sensitive individuals

IPM Team

IPM Team

- ★ IPM Coordinator
- ★ Property Manager
- ★ Pest Management Professional (PMP)
- ★ Maintenance Team
- ★ Residents
- ★ Resident Support Staff

IPM Coordinator

- ★ This person is the leader of the team
- ★ Primary contact person
- ★ Ensures everyone is working together properly
- ★ Evaluates the program
- ★ Keeps records

Property Manager

- ★ This person may also be the Coordinator
- ★ Responsible for resident compliance with the Lease and House Rules
- ★ Responsible for resident education
- ★ Supports the Maintenance team

Pest Management Professional (PMP)

- ★ Works with the Coordinator to schedule upcoming visits
- ★ Provides support with inspections and monitoring
- ★ Must be licensed if required by the State
- ★ Should provide education to the property staff

Maintenance Team

- ★ Respond to work-orders / service requests from residents about pest problems
- ★ Fix source of entry if possible such as cracks and holes
- ★ May in some cases help with unit preparation
- ★ Upkeep and monitoring of common areas
- ★ Uses the Tracking Log

Residents

- ★ Must adhere to the terms of the lease
- ★ Must understand the importance of good housekeeping and reduction of clutter
- ★ Report problems immediately
- ★ Prepare unit for inspection and treatment

Resident Support Staff

- ★ Team that works with the resident in preparing the unit for treatment
- ★ Local code enforcement
- ★ Home health care workers
- ★ Family / friends
- ★ Faith based organizations
- ★ Other support staff

Funding and IPM

Financial Resources for the O/A

- ★ Owners are encouraged to make advances to the property (loan without interest) when no reserves are available

Financial Resources for the O/A

- ★ The owner may also want to inquire if they are able to request an increase for pest control when completing the annual budget

ENSURE PLAN EFFECTIVENESS

Tracking

- ★ Costs,
- ★ Success of treatment
- ★ Efficiency.
- ★ Ensure that you track data from the very beginning so you can see your progress

Costs

★ Track:

- ★ Pest management bills
- ★ Materials used
- ★ Staff time
- ★ Supplies provided to the residents

Success of Treatment

★ Track:

- ★ Amount of pesticide used
- ★ Success rate of freezing or heat
- ★ Number of pests captured in monitoring devices


Efficiency

★ Track:

- ★ Decrease in service requests
- ★ Resident education
- ★ Resident retention
- ★ Reduction in staff time




IPM REVIEW



IPM for Bed Bugs Include

- ★ Raising awareness through education on prevention of bed bugs
- ★ Inspecting infested areas, plus surrounding living spaces
- ★ Checking for bed bugs on luggage and clothes when returning home from a trip



IPM for Bed Bugs Include

- ★ Looking for bed bugs or signs of infestation on secondhand items before bringing the items home
- ★ Correctly identifying the pest
- ★ Keeping records - including dates when and locations where pests are found

IPM for Bed Bugs Include

- ★ Cleaning all items within a bed bug infested living area
- ★ Reducing clutter where bed bugs can hide
- ★ Eliminating bed bug habitats

IPM for Bed Bugs Include

- ★ Physically removing bed bugs through cleaning
- ★ Using pesticides carefully according to the label directions; and
- ★ Following up on inspections and possible treatments

Owners are Strongly Encouraged to:

- ★ Provide training for staff to identify bed bugs
- ★ Follow the IPM plan

Owners are Strongly Encouraged to:

- ★ Actively engage residents in efforts to prevent bed bugs
- ★ Provide orientation for new residents and staff
- ★ Hold workshops
- ★ Encourage reporting

Final Note

Remember it may take a while to see the benefits of your program; however, changing your property operations from reactive management to proactive management eventually saves you money, time and resources.

You will also be providing a healthier environment for your residents and for you and your staff.

IPM for Affordable Housing Properties

- ★ Resources:
- ★ Stop Pests in Housing
www.stoppests.org
- ★ Rutgers Dept. of Entomology
<http://njaes.rutgers.edu/bedbug/>
- ★ The EPA
<http://www.epa.gov/bedbugs/>

★ <http://www.epa.gov/pesticides/kids/hometour/label/read.htm>



S.T.A.R.
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